Comparison Of Online Game Addiction In High School Students With Habitual Computer Use And Online Gaming

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ABSTRACT

The aim of this study is to compare the online game addiction in high school students with the habitual computer use and online gaming. The sample selected through the criterion sampling method, consists of 61.8 % (n=81) female, 38.2 % (n=50) male, 131 high school students. The "Online Game Addiction Scale" developed by Kaya and Başol (2013) and the biographic-demographic information form developed by the researcher were utilized as data collection instruments. The percentage documentation average, independent sample T-test, one-way ANOVA and Kruskal-Wallis were used for data analysis in this study. The result of this study showed that there was a statistically significant difference between the online game addiction and the habitual computer use. It was found out that there was a statistical significant difference between the amount of experience in the use of computer and online game addiction. The difference between the online game addiction and the amount of time spent per day on online gaming was found to be significantly different in terms of statistics according to data in the Troubles, Success and Economic Profit subscale of the online game addiction.

Keywords: Online game addiction, habitual computer use, online gaming.

INTRODUCTION

Today's technological advances have led to the dramatic increases in the use of the computer and internet technologies. There is no unanimous agreement on the specification of the symptoms of the computer/internet addiction. However, researchers refer to the symptoms of the excessive computer/internet use as playing computer games excessively and using internet too much in comparison with the other addiction types (Kelleci, 2008).

The American Psychiatric Association (1994) described the internet addiction as the increase of tolerance for the internet use, withdrawal and the desire to use it excessively (cited in Orzack, 1998). The psychological tolerance can be defined as the gradual increase in the time in the use of computer for playing computer games, arranging documents continuously or spending a lot of time with interactive discussion groups. In spite of the fact that computer users are cognizant of these problematic behaviours, they insist on using computer excessively. When they cannot have an access to a computer, they manifest the withdrawal symptoms such as 'anger' and 'anxiety' (Orzack, 1998).

The use of the computer/internet has brought about several activities that can be carried out online. Under the light of these activities, Young (1999) has categorized those under five headings such as cybersexual addiction, cyber relationship addiction, net compulsion, overloaded information and computer addiction. 'Playing computer games' has been subcategorized under the computer addiction category (cited in Chou, Condor & Belland, 2005; cited in Kaya, 2013). Defining the internet addiction types as an uncontrollable or compulsive use of the internet, Peltoniemi (2002) categorizes it as follows:

-Online sex addiction
-Chat addiction
-Net relationships addiction
-Net game addiction
-Net gambling addiction
-Surfing addiction
-General addiction on computer and information communication technology.

Leung (2014) referred to the internet addicted adolescents as "net-generation". Thus, he studied the net-generation adolescents and non-internet addicted adolescents. Whereas non-internet addicted adolescents use the internet to obtain information, 'net generation' adolescents spend time on chatting in chat rooms for pleasure or spend their time on interactive online games to escape from the real world.

Freemen (2008) has collected the following terms in various sources and put them in his study. Addiction is defined as the compulsive, continued use of a substance or behaviour known by the user to be harmful. It ıs considered to be a kind of brain disease that is manifests as compulsive behaviour. Computer addiction has been

referred to as a compulsive use of computers. The term, dependence is the state of being dependent on or unduly subjected to the influence of something or someone. Internet addiction is defined as a compulsive use of the internet or problematic use of the internet. An online game is a game played while connected to the internet, whereas a video game is an electronic game or computerized game played by moving images on a screen or monitor.

Rooij *et. al.* (2010) investigated how many hours per week adolescents spend their time on playing online games. They found that these adolescents spend an average of 55 hours per week on gaming. Data shows that depressive mood, loneliness, social anxiety and negative self-esteem become higher in addicted online gamers in comparison with the other online gamers.

Blinka and Mikuska (2014) studied the role of social motivation and sociability of gamers in the online game addiction. It was found out that social motivation was a predictor of addictive gaming and high social motivation was typical of intensive gamers regardless of their level of addiction. However, in the gamers with a high risk of addiction, their social self-efficacy and interpersonal trust were found to be lower. In addition, generally less socially skilled gamers face further problems in online interactions.

Among the studies related to the computer/internet addiction, this research study purports to provide academicians, researchers, educational program developers and educators with insights into the online game addiction in high school students with regard to their habitual computer use and online gaming.

The Aim of the Study
The present study aims to investigate the online game addiction in high school students from the perspective of habitual computer use and playing online games.

The Problem Statements of the Study
The main problem statement of the study:

"Is there a statistical difference between the online game addiction in high school students and their habitual computer/internet use?"

The following sub questions were prepared to provide an answer to the main problem.

1. Is there a statistical difference between the online game addiction and the years of computer use?
2. Is there a statistical difference between the online game addiction and the amount of experience in the computer use?
3. Is there a statistical difference between the online game addiction and the amount of time spent per day on online gaming?

RESEARCH METHODOLOGY
Research Design
The descriptive type of associational research method was used to carry out this study. The descriptive perspective was utilized for the investigation of related cases. This type of research aims to evaluate the level and the variation between two and more variables (Karasar, 2009).

The Population and Sample of the Study
The population of this research is 131 high school students in North Cyprus. The sample of the research consists of 131 high school students; 61.8 % (n=81) female and 38.2 % (n=50) male participants. The purposive sampling techniques of criterion sampling method have been used for the selection of the participants who had personal computers.

Instruments
"Online Game Addiction Scale" and biographic-demographic information forms were used to collect data. Biographic and demographic information form was prepared by the researcher. It consisted of 12 questions. In this form the participants were asked to answer questions related to (gender, which class he/she attends etc.) as well as computer-internet related questions. "Online Game Addiction Scale" was developed by Kaya and Başol (2013). The Cronbach's alpha reliability coefficient score of the scale is .91. In Online Game Addiction Scale there are three subscales. These subscales are troubles, success and economic profit. Troubles subscale reflects the level of the trouble experienced because of the habit of playing online games. High scores meant having high

level of troubles and low score meant avoiding troubles. Success subscale indicated the level of one's "continuously playing in order to satisfy oneself and the player's gaining a sense of achievement that depends on playing online games. High success score implies high level of sense of success, while low scores mean no sense of success. Economic profit subscale refers that to the level of achieving economic gains and the effects of these gains by playing online games. The high score shows high level of economic profit and low scores show that player does not have any economic profit from online games. "Online Game Addiction Scale" has a reliability score. Reliability scores of subscales are .70 for the trouble subscale, .70 for the success subscale and .76 for the economic profit subscale respectively.

Data Analysis

All analysis was performed by using the SPSS for Windows. Considering purposes of the study percentage documentation average, one–way ANOVA and Kruskal–Wallis tests were used in data analysis. The statistical significance level was accepted as .05 in the study.

RESULTS

The participants of this study were 131 students who had their personal computers. The group contained 61.8 % (n=81) female and 38.2 % (n=50) male students. The scale was administered to the high school students. The following results were found in line with the problem statement and sub questions of the study.

The first sub-question of the research was expressed as "Is there a statistical difference between the online game addiction and the years of computer use?" The investigation was carried out to compare the years of computer use to the Online Game Addiction Subscale scores by means of the ANOVA Test. Before carrying out the analysis, the homogeneity of the variances was checked by means of the Levene test and the variances were found to be homogeneous as follows:

Troubles: (F=.41; p>.05), Success: (F=.14; p>.05), Economic Profit: (F=1.67; p>.05) and OGA total score: (F=.36; p>.05).

Table 1. The Comparison of the Differences in the Years of Computer Use with the Online Game Addiction Scale Scores (ANOVA)

Subscales	Computer Usage	N	$\bar{X}$	Sd	df	F	p
Troubles	1-3 years 3-5 years 5-8 years 8 years up Total	6 27 61 37 131	1.61 1.78 1.74 2.09 1.84	.97 .88 .86 .93 .89	3 127 130	1.38	.250
Success	1-3 years 3-5 years 5-8 years 8 years up Total	6 27 61 37 131	1.91 2.62 2.63 3.05 2.71	1.17 1.15 1.22 1.20 1.21	3 127 130	2.00	.116
Economic profit	1-3 years 3-5 years 5-8 years 8 years up Total	6 27 61 37 131	1.58 1.70 1.56 2.27 1.79	.91 1.06 .93 1.14 1.05	3 127 130	3.83	.011*
OGA Total Scores	1-3 years 3-5 years 5-8 years 8 years up Total	6 27 61 37 131	1.72 2.09 2.04 2.49 2.16	1.01 .92 .82 .85 .87	3 127 130	2.75	.045*

* p<.05 statistically meaningful difference

As can be seen in Table 1, there is a statistical significant difference between economic profit subscale scores and the years of computer use such as 1-3 years ($\bar{X}$=1.58 ± .91), 3-5 years ($\bar{X}$=1.70 ± 1.06), 5-8 years ($\bar{X}$=1.56 ± .93), 8 years and up ($\bar{X}$=2.27 ± 1.14), (p=.011).

It can also be seen in the same table that there is a statistical significant difference between total scores of OGA and the years of computer use such as 1-3 years ($\bar{X}$=1.72 ± 1.01), 3-5 years ($\bar{X}$=2.09 ± .92), 5-8 years ($\bar{X}$=2.04 ± .82), 8 years and up ($\bar{X}$=2.49 ± .85), (p=.045).

There is not statistical significant difference between troubles subscale scores and the years of computer use such as 1-3 years ($\bar{X}$=1.61 ± .97), 3-5 years ($\bar{X}$=1.78 ± .88), 5-8 years ($\bar{X}$=1.74 ± .86), 8 years and up ($\bar{X}$=2.09 ± .93), (p=.250). Also, there is not statistical significant difference between success subscale and the years of computer use such as 1-3 years ($\bar{X}$=1. 91 ± 1.17), 3-5 years ($\bar{X}$=2. 62 ± 1.15), 5-8 years ($\bar{X}$=2. 63 ± 1.22), 8 years and up ($\bar{X}$=3. 05 ± 1.20), (p=. 116).

The second sub-questions of the research was expressed "Is there a statistical difference between the online game addiction and the amount of experience in the computer use?

The investigation was to compare the amount of experience in the use of computer with the Online Game Addiction Subscale scores by using ANOVA and Kruskal Wallis. Before carrying out the analysis, the homogeneity of the variances was checked by means of the Levene test and the variances were found to be homogeneous as follows:
Success (F=.23; p>.05), Economic Profit (F=1.57; p>.05) and OGA total scores (F=.36; p>.05).

However, the results of the test indicate that the Troubles Subscale variances (F=4.33; p<.05) are not homogeneous and this subscale has been calculated by using the Kruskal Wallis Test.

Table 2. The Comparison of the Success, the Economic Profit Subscale Scores and OGA General Test Scores with the Amount of the Computer Use Experience (ANOVA)

Subscales	Experience of Computer Usage	N	$\bar{X}$	Sd	Df	F	p
Success	Little Experience Moderate Experience High Experience Total	40 67 24 131	2.45 2.63 3.37 2.71	1.12 1.18 1.27 1.21	2 128 130	4.82	.010*
Economic profit	Little Experience Moderate Experience High Experience Total	40 67 24 131	1.61 1.63 2.54 1.79	.93 .97 1.18 1.05	2 128 130	8.17	.000**
OGA General Scores	Little Experience Moderate Experience High Experience Total	40 67 24 131	1.97 2.05 2.78 2.16	.80 .80 .94 .87	2 128 130	8.25	.000**

* p<.05 statistically meaningful difference
** p<.001 statistically meaningful difference

As can be seen in Table 2, there is a statistical significant difference between success subscale scores and amount of experience in the use of computer, such as little experience ($\bar{X}$=2. 45 ± 1.12), moderate experience ($\bar{X}$=2. 63 ±

1.18), high experience ($\bar{X}$=3. 37 ± 1.27), (p=. 010). There is a statistical significant difference between economic profit subscale scores and amount of experience in the use of computer, such as little experience ($\bar{X}$=1. 61 ±.93), moderate experience ($\bar{X}$=1. 63 ±.97), high experience ($\bar{X}$=2. 54 ± 1.18) and (p=. 000). It can also be seen in the same table that there is a statistical significant difference between OGA scale total scores and amount of experience in the use of computer such as little experience ($\bar{X}$=1. 97 ±.80), moderate experience ($\bar{X}$=2. 05 ±.80), high experience ($\bar{X}$=2. 78 ±.94), (p=. 000).

Table 3. The Comparison of Troubles Subscale Scores with the Amount of the Computer Use Experience
(Kruskal-Wallis)

Subscales	Computer Usage	N	$\bar{X}$	Sd	Mean Rank	X²	p
Troubles	Little Experience Moderate Experience High Experience	40 67 24	1.70 1.73 2.37	.82 .80 1.09	60.21 62.48 85.48	8.04	.018*

* p<.05 statistically meaningful difference

As can be seen in Table 3, there is a statistical significant difference found between troubles subscale scores and amount of experience in the use of computer such as little experience ($\bar{X}$=1. 70 ±.82), moderate experience ($\bar{X}$=1. 73 ±.80), high experience ($\bar{X}$=2. 37 ± 1.09), (p=. 018).

The last sub-questions of the research were expressed "Is there a statistical difference between the online game addiction and the amount of time spent per day on online gaming?"
The investigation was to compare the amount of time spent per day on online gaming to the Online Game Addiction Subscale scores using by ANOVA and Kruskal Wallis. Before carrying out the analysis, the homogeneity of the variances was checked by means of the Levene test and the variances were found to be homogeneous as follows:
Success (F=.61; p>.05) and OGA total scores (F=1.63; p>.05).

However, the results of the test indicate that the Troubles Subscale variances (F=4.33; p<.05) and Economic Profit Subscale variances (F=9.34; p<.05) are not homogeneous and this subscale has been calculated by using the Kruskal Wallis Test.

Table 4. The Comparison of the Success Subscale Scores and OGA General Test Scores with the Amount of Time Spent Per Day on Online Gaming (ANOVA)

Subscales	Experience of Computer Usage	N	$\bar{X}$	Sd	df	F	p
Success	1-3 hours 3-5 hours 5-8 hours 8 hours up No online gaming Total	41 16 6 6 62 131	3.23 3.75 2.57 3.79 2.01 2.71	.94 1.02 .75 1.35 1.02 1.21	4 126 130	16.11	.000**
OGA General Scores	1-3 hours 3-5 hours 5-8 hours 8 hours up No online gaming Total	41 16 6 6 62 131	2.47 2.91 2.45 3.34 1.62 2.16	.72 .67 .42 1.16 .64 .87	4 126 130	20.38	.000**

** p<.001 statistically meaningful difference

As can be seen in Table 4, there is a statistical significant difference found between success subscale scores and the amount of time spent per day on online gaming such as not playing online games every day ($\bar{X}$=2,01 ± 1.02), 1-3 hours ($\bar{X}$=3.23 ± .94), 3-5 hours ($\bar{X}$=3.75 ± 1.02), 5-8 hours ($\bar{X}$=2.57 ± .75), 8 hours up ($\bar{X}$=3.79 ± 1.35), (p=.000). It can also be seen in the same table that there is a statistical significant difference between the OGA scale total scores and the amount of time spent per day on online gaming such as not playing online games every day ($\bar{X}$=1.62 ± .64), 1-3 hours ($\bar{X}$=2.47 ± .72), 3-5 hours ($\bar{X}$=2.91 ± .67), 5-8 hours ($\bar{X}$=2.45 ± .42), 8 hours up ($\bar{X}$ =3.34 ± 1.16), (p=.000).

Table 5. The Comparison of the Troubles Subscale and the Success Subscale Scores with the Amount of Time Spent Per Day on Online Gaming (Kruskal-Wallis)

Subscales	Computer Usage	N	$\bar{x}$	Sd	Mean Rank	X^2	p
Troubles	1-3 hours	41	2.02	.84	76.28		
	3-5 hours	16	2.21	1.05	82.50		
	5-8 hours	6	2.51	.48	100.75	35.58	.000**
	8 hours up	6	3.29	1.09	110.92		
	No online gaming	62	1.42	.60	47.23		
Economic Profit	1-3 hours	41	1.98	1.07	75.89		
	3-5 hours	16	2.79	1.40	94.69		
	5-8 hours	6	2.04	.90	83.33	30.57	.000**
	8 hours up	6	2.54	1.55	85.17		
	No online gaming	62	1.31	.54	48.52		

** p<.001 statistically meaningful difference

As can be seen in Table 5, there is a statistical significant difference between the troubles subscale scores and the amount of time spent per day on online gaming such as not playing online games every day ($\bar{X}$=1.42 ± .60), 1-3 hours ($\bar{X}$=2.02 ± .84), 3-5 hours ($\bar{X}$=2.21 ± 1.05), 5-8 hours ($\bar{X}$=2.51 ± .48), 8 hours up ($\bar{X}$=3.29 ± 1.09), (p=.000). Also, there is a statistical significant difference between success subscale scores and the amount of time spent per day on online gaming in the not playing online games such as not playing online games every day ($\bar{X}$=1. 31 ±.54), 1-3 hours ($\bar{X}$=1. 98 ± 1.07), 3-5 hours ($\bar{X}$=2. 79 ± 1.40), 5-8 hours ($\bar{X}$=2. 04 ±.90), 8 hours up ($\bar{X}$=2. 54 ± 1.55), (p=. 000).

DISCUSSION AND CONCLUSION

This study has sought to find out whether the high school students' online game addiction varies with regard to their computer use and online gaming habits. The results of the study indicate that there is a statistically significant difference between economic profit and the years of computer use scores in terms of the online game addiction subscale. It has been found out that the students who used the computer more than eight years obtained economic profits from online games. In addition, the computer use of eight years or more risks the online game addiction. According to Kim *et. al.* (2005) the average money spent for online games was $30.90 per month. Both studies show that the financial issues have an impact on the online game addiction.

With respect to the online game addiction was studied and it has been discovered that the students with a higher experience in online gaming differ from those with a lower experience from the perspective of the computer use experience. The study revealed that the students in question were successful in online gaming, they earned money from online gaming and the online gaming troubled their lives. Wilfong (2006) states that "The computer self-efficacy and the computer-experience composite were each used as separate models to predict computer-anxiety, of which computer self-efficacy had the most significant impact. However, when combining these two variables to predict computer-anxiety, computer self-efficacy also had the most significant impact." Thus, the feeling of success in online gaming against one's rival accounts for having the feeling of success and self-efficacy.

This study tried to show whether there was a significant difference between the hours per day spent on online gaming and the online game addiction. It was found out that the students who spent eight hours or above on online gaming had trouble in their lives, developed the feeling of success and earned money. In the study carried out by Kim *et. al.* (2005), the mean amount of time spent on the game per day was 313.09 minutes. Rooij *et. al.*

(2010) found that adolescents reported an average of 55 hours per week on gaming and they also showed that the addicted online gamers had a higher depressive mood, the feeling of loneliness, social anxiety and negative self-esteem than the other online gamers. Block (2008) studied the South Korean students who spent the average of 23 hours per week on online gaming and found that 1.2 million students were probably at the risk of addiction. Therapists worry about the increasing number of students' low school achievements, dropping out of school to spend time on computers. Internet addiction is resistant to treatment and high relapse risks regrettably. According to the results of these studies, the related studies support one another and they indicate that as the online gaming time increases, the students are affected negatively.

Only the high-school adolescents with the families of the higher socio-economic status and with higher educational level participated in this study. The students with the families of lower socio-economic status and lower educational level could be investigated in another study. Having a large sample of students with different backgrounds may enable researchers to generalize the results for the whole community. If further studies can be carried out with the other age groups cause, it may provide further insights into online game addiction.

In conclusion, the results of the study show that the understanding of the ''at risk'' population of the online game addiction and provide us with basic information that can contribute to the development of the education program and the prevention program for high school students who are addicted or risk groups for online gaming addiction.

References
Blinka, L. & Mikuska, J. (2014). The role of social motivation and sociability of gamers in online game addiction. *Journal of Psychosocial Research on Cyberspace,* 8(2), Article 6.
Block, J. J. (2008). Issues for DSM-V: Internet addiction. Am J Psychiatry, 165(3), 306-307.
Chou, C., Condron, L. & Belland, J., C. (2005). A review of the research on Internet addiction. *Educational Psychology Review,* 17(4), 363-388.
Freeman, C., B. (2008). Internet gaming addiction. *The Journal for Nurse Practitioners,* 4(1), 42-47.
Leung, L. (2004). Net-generation attributes and seductive properties of the internet as predictors of online activities and internet addiction. *Cyberpsychology & Behavior,* 7(3), 333-348.
Orzack, H. M. (1998). Computer addiction: What is it? *Psychiatric Times*, 5(8), 2-3.
Peltoniemi, T. (2002). *Net addiction in Finland*. First Prevent Conference of Telematics in Addiction Prevention, Athens, Greece.
Karasar, N. (2009). *Bilimsel araştırma yöntemi.* Ankara: Nobel Yayın Dağıtım.
Kaya, A., B. (2013). *Çevirimiçi oyun bağımlılığı ölçeğinin geliştirilmesi: Geçerlilik ve güvenilirlik çalışması.* Unpublished Master's Thesis, University of Gaziosmanpaşa, Tokat, Turkey.
Kelleci, M. (2008). İnternet, cep telefonu, bilgisayar oyunlarının çocuk ve gençlerin ruh sağlığına etkileri. *TAF Preventive Medicine Bulletin*, 7(3), 253-256.
Kim, J., E., Namkoong, K.,Ku, T. & Kim, S., J. (2008). The relationship between online game addiction and aggression, self-control and narcissistic personality traits. *European Psychiatry*, 23(3), 212-218.
Rooji, A., J., Schoenmakers, T., M., Vermulst, A. , A., Eijnden, J., J., M. & Mheen, D. (2010). Online video game addiction: Identification of addicted adolscents gamers. Addiction, 106(1), 205-212.